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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,809	11/21/2002	Alain Blanc	FR920010071	7980
24241 7590 06/01/2007 IBM MICROELECTRONICS INTELLECTUAL PROPERTY LAW 1000 RIVER STREET 972 E ESSEX JUNCTION, VT 05452			EXAMINER LY, ANH VU H	
			ART UNIT 2616	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/065,809

Applicant(s)

BLANC ET AL.

Examiner

Anh-Vu H. Ly

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 3,5,6 and 10-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3,5,6 and 10-19 is/are rejected.
- 7) ☒ Claim(s) 5,6,10 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 5-6, 10, and 14 are objected to because of the following informalities:

With respect to claim 5, in line 3, replace "said exhaustive priority" with --said exhaustive priority rank--. Further, it is improper for claim 5, a preceding claim, to depend on succeeding claim 19.

With respect to claims 6 and 14, in line 2, replace "the queue device" with --a queue device--. Further, it is improper for claim 6, a preceding claim, to depend on succeeding claim 19.

With respect to claim 10, in line 4, replace "each defined by a priority rank for storing each of data packet" with --each defined by a priority rank in a plurality of priority ranks for storing each of data packets-- to eliminate the issue of lacking antecedent basis of "said priority ranks" recited in lines 5-6 and 11 of claim 10, in lines 2-3 of claim 11, and in line 3 of claim 17. Further, in line 9, replace "N defining the priority rank" with --N defining a priority rank--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claims 10-11, 14, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novick (US Patent No. 6,980,513 B2).

With respect to claim 10, Novick discloses a queue scheduling mechanism in a data packet transmission system (Fig. 1), the data packet transmission system including a transmission device for transmitting data packets (Fig. 1, mux 14), a reception device for receiving said data packets (not shown, but the system of Fig. 1 must have a demux for receiving the transmitted packets), a set of queue devices respectively associated with a set of priorities each defined by a priority rank for storing each of data packet transmitted by said transmission device into the queue device corresponding to one of said priority ranks (Fig. 1, queues 16, 18, 20, 22, 26, 28, 30, and 32 each has a priority for storing packets) and a queue scheduler for reading, at each packet cycle, a data packet in one of said queue devices determined by a normal priority preemption algorithm (Fig. 1, scheduler 34 for scheduling BE list 38), said queue scheduling mechanism comprising:

a credit service (Fig. 1, MCR list 36) that provides at each packet cycle a value N defining the priority rank to be considered by said queue scheduler (Fig. 1, scheduler 24), the considered priority rank is selected based on a pre-determined value related to all of said priority ranks which are associated with said queue scheduling mechanism (Fig. 1, MCR list 36 contains assigned priority connections), whereby a data packet is read by said queue scheduler from the queue device corresponding to the priority rank N instead of said queue device determined by the normal priority preemption algorithm (Fig. 2, cells are read from queues 16, 18, 20, and 22 first).

Novick discloses having two separate queue schedulers for performing MCR and BE connections (Fig. 1, schedulers 24 and 34). Novick does not disclose a scheduler for performing

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both priority rank scheduling and normal priority preemption scheduling. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to integrate the two schedulers of Novick into a single scheduler for performing both MCR and BE scheduling to reduce space in a device.

**To Make Integral (*In Re Larson*, 144 USPQ 347 (CCPA 1965)).**

With respect to claim 11, Novick discloses that wherein said credit service (Fig. 1, MCR list 36) includes a credit table storing at each address a value N equal to one of said priority ranks (Fig. 1, MCR list 36 must include table for indicating MCR connections), the address to be read by said queue scheduler for determining said priority rank N being incremented at each packet cycle after a data packet has been read from the queue device corresponding to said priority rank N (Fig. 2, blocks 112 and 132).

With respect to claim 14, Novick discloses that wherein a data packet is read from a queue device determined by said normal priority preemption algorithm when there is no data packet available in the queue device corresponding to said priority rank N (Fig. 2, block 130).

With respect to claim 16, Novick discloses that wherein said queue scheduling mechanism is used in a switching engine of a switching node within a network, wherein said transmission device is an input adapter and said reception device is an output adapter (col. 3, lines 7-9).

With respect to claim 17, Novick discloses that wherein said pre-determined value comprises a pre-determined percentage of occurrence of said considered priority rank relative to all of said priority ranks (col. 4, lines 8-15).

With respect to claim 18, Novick discloses an output signal line that provides said data packet that is read by said queue scheduler to said reception device (Fig. 1, output line of mux 14).

3. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novick in view of Lyon (US Patent No. 6,721,273).

With respect to claims 12 and 13, Novick discloses a bandwidth allocation device for MCR and BE connections (Fig. 1). Novick does not disclose that wherein a data packet is read by said queue scheduler from said queue device corresponding to said priority rank N only if an active GRANT signal from said reception device is received by said queue scheduler and wherein said GRANT signal depends upon a filling level of a receiving queue device in said reception device into which the data packets read from said queue devices are stored. Lyon discloses a method and apparatus for traffic flow control in a data switch, referring to Figs. 1 and 6, a traffic flow controller 100 in coupled between the output and input ports (col. 5, lines 22-27; the scheduler 50 only sends data when indicated no congestion (GRANT) (col. 7, lines 48-53). Also, Lyon teaches that the GRANT signal depends on a filling level of the receiving queue device in the reception device (col. 6, lines 2-9). It would have been obvious to one having ordinary skill in the art at the time the invention was made to send data from the transmitting

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device only when the queue device of the receiving device is capable of storing the data packets in Novick's system, as suggested by Lyon, thereby preventing the network from entering congested state.

4. Claims 5, 6, 15, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novick in view of Chow et al (US Patent No. 6,438,134 B1).

With respect to claim 15, Novick discloses a bandwidth allocation device for MCR and BE connections (Fig. 1). Novick does not disclose that wherein a number of locations in said credit table contain no value meaning that the priority rank to be considered is the highest priority rank. Chow discloses a method for serving queues by a hierarchical scheduler including weighted fair queue scheduler 1116 (Fig. 8), the credits or weights are assigned as Table 3 (col. 12) p1, p2, p3, p4 and  $\infty$ , wherein  $\infty$  represents the highest priority (col. 12, lines 27-31). It would have been obvious to one having ordinary skill in the art at the time the invention was made to leave the highest priority entry in the table with no value in Novick's system, as suggested by Chow, thereby reducing memory.

With respect to claims 5 and 19, Novick discloses a bandwidth allocation device for MCR and BE connections (Fig. 1). Novick does not disclose an exhaustive priority register that registers the value of at least one exhaustive priority rank to be read by said queue scheduler from the queue device corresponding to said exhaustive priority rank rather than from the queue device corresponding to said priority rank N and wherein a data packet is read from the queue device determined by said priority rank N when there is no data packet available in the queue

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device corresponding to said exhaustive priority rank. Chow discloses a method for hierarchically scheduling the data packet in a switch (Fig. 2) comprising an secondary idle BW scheduler 25, which is preferably implemented as weighted fair queue scheduler (works as the priority rank scheduler) (col. 6, lines 1-9); a secondary sharper scheduler 20 and an exhaustive scheduler 30, the secondary sharper scheduler 20 is assigned a higher priority level than the secondary idle BW scheduler 25, thereby ensuring the former will always served ahead of the latter (Fig. 2 and col. 5, lines 19-37). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include an exhaustive priority rank in Novick's system, as suggested by Chow, thereby the highest prioritized packets are always served first to guarantee a QoS.

With respect to claim 6, Novick discloses that wherein a data packet is read from a queue device determined by said normal priority preemption algorithm when there is no data packet available in the queue device corresponding to said exhaustive priority rank and in the queue device corresponding to said priority rank N (Fig. 2, block 130. Herein, the BE is the lowest to be read).

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Novick and Chow further in view of Lyon.

With respect to claim 3, Novick discloses a bandwidth allocation device for MCR and BE connections (Fig. 1). Novick does not disclose that wherein a data packet is read by said queue scheduler from said queue device corresponding to said exhaustive priority rank only if an active



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GRANT signal from said reception device is received by said queue scheduler. Lyon discloses a method and apparatus for traffic flow control in a data switch, referring to Figs. 1 and 6, a traffic flow controller 100 in coupled between the output and input ports (col. 5, lines 22-27; the scheduler 50 only sends data when indicated no congestion (GRANT) (col. 7, lines 48-53). It would have been obvious to one having ordinary skill in the art at the time the invention was made to send data from the transmitting device only when the queue device of the receiving device is capable of storing the data packets in Novick's system, as suggested by Lyon, thereby preventing the network from entering congested state.

### ***Response to Arguments***

6. Applicant's arguments, see pages 6-9, filed May 10, 2007, with respect to the rejection(s) of claim(s) 3, 5-6, and 10-19 under 35 U.S.C 102(e) and 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection, under 35 U.S.C. 103(a) is made in view of Novick (US Patent No. 6,980,513 B2) alone and further in view of *In Re Larson*.

The finality of the Office Action dated March 09, 2007 is withdrawn. However, this Office Action is made final due to Applicant's amendment filed December 14, 2006.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh-Vu H. Ly whose telephone number is 571-272-3175. The examiner can normally be reached on Monday-Friday 7:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

avl

  
CHI PHAM  
SUPERVISORY PATENT EXAMINER  
5/29/08